

Abstracts

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without comorbid depression in the US in 2001. **METHODS:** Retrospective case-control analysis was conducted of the 2001 Medical Expenditure Panel Survey. In 2001, 32,122 persons from the US civilian noninstitutionalized population were surveyed. A total of 1101 patients 18 years or older with chronic obstructive pulmonary disease were identified. Cases and controls were identified using ICD-9 codes. The data contained 153 cases with chronic obstructive pulmonary disease and depression and 948 similar patients without comorbid depression. Cases were matched at a 1:1 ratio to controls based on age, race, gender, and number of comorbidities apart from depression. The matching procedure resulted in 145 pairs. Sample estimates were projected to the population. Expenditure variables represent sums of all annual out-of-pocket expenditures and third party payments. Differences in resource use and expenditures between cases and controls were examined using t-tests. Data were analyzed using SAS Version 8.2. **RESULTS:** Patients with chronic obstructive pulmonary disease and comorbid depression had higher average total health care expenditures (\$10,845 vs. \$6,430; $p = 0.0231$), expenditures for prescription medications (\$2,643 vs. \$1574; $p = 0.0007$), use of office-based visits (15.5 vs. 9.4; $p = 0.0027$), and number of annual prescription medications purchased (45.8 vs. 27.9; $p = 0.0001$) than the control group. Net incremental expenditures associated with comorbid depression were \$7,030,575,677 for total health care and \$1,698,632,604 for prescription medications. **CONCLUSIONS:** Total health care expenditures were 1.7 times higher for patients with chronic obstructive pulmonary disease and comorbid depression than for similar patients without depression matched on age, gender, race, and number of comorbidities. Depression in conjunction with chronic obstructive pulmonary is associated with considerable health care expenditures and utilization of office-based services and prescription medications.

PR57

PHARMACOECONOMIC ANALYSIS OF TIOTROPIUM THERAPY IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASES IN HONG KONG: A PRELIMINARY REPORT
Lee KK, Lee VW, Hui DS

The Chinese University of Hong Kong, Hong Kong, China

OBJECTIVES: The prevalence of chronic obstructive pulmonary disease (COPD) in Hong Kong has been estimated to be 0.35 per 1000 population. The cost of management can therefore translate into an enormous burden on the health care budget. Current pharmacotherapy includes bronchodilators plus anticholinergics. Patient compliance can be a problem due to multiple daily dosing, hence the present study aims to evaluate the potential benefits of tiotropium with once-daily dosage. **METHODS:** The cost of management of COPD was estimated by retrospective review of the history of a cohort of COPD patients admitted to the Prince of Wales Hospital (PWH) in Hong Kong from January 1, 2001 to December 31, 2001. Cost items included hospitalization, procedures, laboratory tests, medications and outpatient clinic visits. The cost-effectiveness (CE) model for COPD developed by Boehringer-Ingelheim was used to assess the CE of COPD therapies. All analysis was based on local cost data, and probabilities of events and efficacy data of tiotropium were adopted from overseas published randomized controlled trials as there is yet no local published data. The study was performed from the perspective of a public hospital. **RESULTS:** Data of 30 patients admitted to the PWH due to COPD were analyzed with the model. Compared to ipratropium, the once-daily dosage of tiotropium showed a decrease in number of exacerbations (0.89 vs. 1.21), a decrease in the management cost due to exacerbations (US\$2550 vs. 4183) and the cost per exacerbation avoided

due to tiotropium was US\$4278. **CONCLUSION:** Based on our preliminary results, tiotropium appears to be a more cost-effective agent in the treatment of COPD when compared to ipratropium.

PRS8

COST-EFFECTIVENESS ANALYSIS OF TIOTROPIUM FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS IN JAPAN

Nishimura S¹, Kobayashi M², Hasegawa T³

¹Kyoto University, Kyoto, Kyoto, Japan; ²Crecon Research and Consulting Inc, Shibuya, Tokyo, Japan; ³Pfizer Japan Inc, Yoyogi, Shibuya-ku, Japan

OBJECTIVE: Chronic obstructive pulmonary disease (COPD) is a major cause of death and disability throughout the world. The objective of this study was to evaluate the health/economics consequence of four treatments (tiotropium, ipratropium, salmeterol and usual care) for patients with COPD in Japan. **METHODS:** In order to estimate the patient's prognosis for one year, we constructed a Markov model based on the model developed by Oosenbrink J et al. in Netherlands. Three Markov stages were set based on the degree of patient's symptoms, e.g., moderate, severe, and very severe. Acute exacerbation was also included in the model. Transition probabilities were derived from several clinical trials. The duration of remaining in the moderate stage was used to define effectiveness. This study was conducted from the payer's perspective and only direct medical costs were considered. Since the time horizon was one year, discounting was not considered. **RESULTS:** The expected costs for tiotropium, ipratropium, salmeterol and usual care were JPY559,314, JPY771,395, JPY612,707 and JPY621,400, respectively (\$1 = JPY103.84). The periods of duration of remaining in the moderate stage (months) were 8.09, 5.56, 6.99 and 6.43, respectively. The numbers of acute exacerbation were 0.80, 1.19, 0.96 and 0.91, respectively. A sensitivity analysis on the probability of home oxygen therapy during maintenance therapy also showed that the tiotropium was the most cost-effective treatment. **CONCLUSION:** In spite of the highest daily drug cost, tiotropium is a cost-saving therapy for treatment of COPD patients in Japan.

PRS9

ADHERENCE TO RESPIRATORY MEDICATIONS IN VA PATIENTS WITH CHRONIC LUNG DISEASE

Lee TA¹, Bartle B¹, McLaughlin T², Dirani R³

¹Hines VA Hospital, Hines, IL, USA; ²NDC Health, Phoenix, AZ, USA; ³Pfizer Inc, New York, NY, USA

OBJECTIVES: Most adherence studies have focused on oral medications, with less attention on diseases where non-oral routes of administration are predominant. Our objective was to estimate adherence in VA patients using medications for chronic respiratory disease and examine factors related to adherence. **METHODS:** We identified patients treated at Chicago-area VAs that filled at least two respiratory medications between 08/2002 and 07/2003 (baseline period). We calculated medication possession ratios (MPRs) for each class of respiratory medication between 08/2003 and 07/2004 (study period) that patients filled during the baseline period. Patients were classified as having asthma, COPD, combined asthma and COPD (CAC) or none based on diagnoses at baseline. Average MPR for each medication category was calculated and logistic regression was used to identify factors associated with MPRs of $\geq 75\%$. **RESULTS:** There were 7511 patients included (96.7% male, 35% white). The number of patients by disease were: COPD = 3721 (49.5%); asthma = 1045 (13.9%); CAC = 726 (9.7%) and none = 2019

(26.9%). Overall, MPRs were 0.58 for long-acting beta-agonists (LABA); 0.61 for ipratropium+short-acting beta-agonist; 0.63 for ipratropium; 0.63 for inhaled corticosteroids (ICS); and 0.90 for theophylline (THEO). There were similar results in stratified analyses by disease group with lowest MPRs for LABA and highest for THEO. For ICS users, factors associated with MPRs ≥ 0.75 were: higher proportion of prescriptions through mail order, Caucasians, and ED visit or hospitalization in the baseline period. For LABA users, in addition to the factors for ICS users, specialist provider visits were associated with high MPRs. **CONCLUSIONS:** Patients had higher levels of adherence for oral medications than for inhaled medications. Higher adherence rates were associated with serious events and greater use of mail order. Thus, route of administration, disease and health system factors all appear to influence adherence to chronic respiratory medications.

PRS10

PREDICTORS OF DRUG PERSISTENCY FOR ASTHMA AND COPD PATIENTS

Lipskiy N, Hess G, Fruchtl B

Surveillance Data Inc, Plymouth Meeting, PA, USA

OBJECTIVE: This study examines the predictors of patient persistency for major drug categories related to the treatment of Asthma and COPD. **METHODS:** The study design was retrospective covering the 12-month, longitudinal period (October 2003–September 2004). It included analysis of electronic CMS1500 claims for 26,152 unique patients (HIPAA compliant). Patients' medication was assessed through NCPDP electronic claims utilizing NDC codes and drug classes. Treatment persistency was identified and compared across drugs in each disease group. Analysis included calculations of descriptive statistics and regression modeling. **RESULTS:** On average, COPD patients are more persistent than asthma patients. In particular, the persistency of COPD patients taking Advair, Combivent, Flovent and Pulmicort was higher than those patients diagnosed with asthma, respectively by 13.5%, 34.3%, 25.8% and 34.6% ($P < 0.05$). The age of patients is one of the most important predictors of a patients' persistency. For example, the likelihood of refilling a long-acting bronchodilator (LABA) prescription for asthma in patients age 18 years and older is 1.51 times higher ($p < 0.05$) than for those patients who are in the age category 17 years and younger. For both, asthma and COPD, there is a strong relationship between therapeutic class of drugs and persistency. The highest persistency of asthma patients was identified for those who use xanthines, and the lowest for those who take oral beta-blockers (1.89 times difference, $P < 0.05$). COPD patients were more persistent in their use of xanthines and had their lowest persistency on inhaled corticosteroids (1.66 times difference, $P < 0.05$). Logistic regression models were created to quantify the relationship between annual average lengths of treatment and predictors. **CONCLUSIONS:** There is a significant difference between drug persistency for patients with asthma and COPD even when controlling for the same medication. Adjusted for diagnosis, the major predictors of patient persistency appeared to be patient's age and therapeutic drug category.

PRS11

COMMUNITY PHARMACISTS AND TUBERCULOSIS IN THE DOTS ERA- A CROSS-SECTIONAL STUDY OF LAGOS STATE OF NIGERIA

Okolo CO¹, Kale OO²

¹University of York, Heslington, York, UK; ²University of Ibadan, Ibadan, Nigeria

OBJECTIVE: To establish the need to include designated community (private) pharmacies/pharmacists in the Lagos State DOTS programme for effective control of Tuberculosis. **METHOD:** A cross sectional descriptive study involving the use of semi structured questionnaires administered to a random sample of an estimated population (150) of community pharmacists in Lagos State of Nigeria. Data was analysed by use of SPSS 12. **RESULTS:** The results show that: 86.8% of respondents stocked anti-TB drugs; 67.2% of them had dispensed these drugs at least within the immediate past one month preceding survey; 19.3% of them were patronised daily and 43.3% dispensed without a doctors prescription. 63.7% of respondents did not acknowledge that TB drugs were given to patients free of charge anywhere, 43.4% did not know about DOTS; 89.2% were of the opinion that community pharmacies would help increase TB control coverage, 68.1% would accept to render DOTS services in their pharmacies out of which 15.5% would do that at no costs. 80.9% of respondents claimed that a pharmacist is on duty in their pharmacies throughout open hours; however most were not seen until after several visits. 1.4% of the pharmacists were of the opinion that TB is incurable while 8.3% said TB runs in families, however 75.8% reported that most HIV patients present with TB co-infection. **CONCLUSION:** Designated community pharmacies that meet basic ethical requirements with regards to environment, facilities, location and personnel should be accredited to render DOTS services for effective and efficient grass root TB control, especially in places like Nigeria where TB is on the increase as a result of HIV pandemic. This will improve proper monitoring and patients compliance by reducing travel time, cost and risk of travel to clinics, social stigmatisation, waiting time, and generally reduce the real cost of treatment for patients, with an assured wider coverage.

PRS12

RACIAL DISPARITIES IN PREDICTORS OF HEART FAILURE IN MEDICAID PATIENTS WITH COPD

Shaya FT¹, ElKhouri AC², Weir MR³

¹University of Maryland, Baltimore, MD, USA; ²University of Maryland School of Pharmacy, Baltimore, MD, USA; ³University of Maryland School of Medicine, Baltimore, MD, USA

INTRODUCTION: This study identifies important risk factors, race and predictors of heart failure (HF) in a chronic obstructive pulmonary disease (COPD) Medicaid population, to help inform plans and better target interventions for COPD disease management. **METHODS:** A retrospective analysis was performed for all medical claims of Medicaid COPD patients, between January 1, 2001–December, 31, 2003. COPD patients were included if they had at least one claim with ICD-9 codes 491.xx, 492.xx, or 496.xx, in the primary, secondary or tertiary diagnosis. We used multivariate logistic regression models to evaluate associations between heart failure and race, adjusting for age, gender, cardiovascular diseases and risk factors. **RESULTS:** Total of 13,924 COPD patients, mean age 42. African Americans (OR = 1.25 $p = 0.0001$ CI 1.12–1.40) were more likely to have HF than others during their follow up, even after adjusting for age, gender and clinical risk factors. Patients older than 60 (OR = 5.13 $p < 0.0001$ CI 4.16–6.32) and those between 40 and 60 (OR = 3.34 $p < 0.0001$ CI 2.75–4.05) were more likely to have HF than those younger than 40. Hypertension (OR = 2.30 $p < 0.0001$ CI 2.02–2.61), diabetes (OR = 2.16 $p < 0.0001$ CI 1.93–2.42), obesity (OR = 2.18 $p < 0.0001$ CI 1.91–2.48), acute myocardial infarction (OR = 3.09 $p < 0.0001$ CI 2.56–3.73) and cardiomyopathy (OR = 15.76 $p < 0.0001$ CI 12.95–19.18) were also significant predictors of heart failure. Gender and urban residence